

## Claims

[c1] (Currently Amended) I claim a ~~The stationary armature variable speed self commutating machine comprising:~~ (a) a stationary armature including multiple sets of lap or wave windings connected in series ~~forming~~ having multiple taps each attached to one stationary commutator segment; (b) a rotor comprised of a coil or a permanent magnet as a means for inducing a steady state magnetic field encompassed by said stationary armature; (c) a stationary commutating assembly ~~comprised of multiple~~ comprising a plurality of commutator segments each electrically insulated for the other being fixed to the machine housing[[.]]; ~~each said commutator segment being electrically connected to one of the said armature windings, having a pair of slips rings affixed to stationary machine housing and electrically insulated from each other, each slip ring being electrically connected to one end of said rotor coil, one slip ring being electrically connected to the terminal of an electrical current power source and the other slip ring being electrically connected to the other terminal of said power source, having a commutating means such that a rotating magnetic field is induced in said armature windings that drives the rotor;~~ and (d) a rotating brush assembly being affixed to said rotor and comprised comprising of a pair of brushes each electrically insulated from the other, having springs, and a brush keeper with a counter weight at one end and a fulcrum at its center of gravity as means for applying pressure ensuring contact between said rotating brushes and stationary commutator segments, one of the said rotating brushes being physically arranged 180 electrical degrees apart from the other, each said brush having a limited range of movement within brush holder, electrically contacting one of the said slip rings and adjacent ones of said

commutator segment forming an electrical shunt between them as a means for transferring electrical energy from a power source to said windings; a plurality of brushes arranged in sub-assemblies held in place by a non-conducting support base as a means for electrical insulation; a first and second sub-assembly each consisting of at least two brushes, two copper brush holders, one brush keeper or shunt having a curved surface at one end contacting the top of each brush, a counter weight at the other end forming a shunt being said two brushes, a fulcrum at the copper brush keeper's center of gravity attached to said non-conducting support base providing a limited range of yaw within the sub-assembly's plane of rotation and a retaining spring as means for containing the brushes within said copper brush holder; a first and second stationary, conductive slip ring as a means for current flow between a power source, stationary armature and rotating field windings.

[c2] (Currently Amended) The machine in claim 1 wherein rotating field coil wires are connected to said first and second rotating sub-assembly brush holders in an electric circuit parallel to said armature as a means for shunting current flow around said stationary armature windings and rotor coil having and rotor coil. Such that current flows through said first slip ring and first rotating sub-assembly's first brush, brush holder, and brush keeper to the second brush holder, brush, commutator and armature, with some current flow being shunted around said armature through wires connected to the brush holder of a second rotating brush sub-assembly of opposite polarity forming a parallel or shunt electrical connection circuit.

[c3] (Currently Amended) The machine in claim 1 wherein stationary armature windings and rotor coil having a series electrical connection such that electric current from said power

source flows through said armature windings and rotor coil in a series electrical connection, whereas first rotating brush sub-assembly comprised of two copper brush holders being electrically insulated from each other, having a non-conducting brush keeper being curved at one end and held together at the other end via a non-conducting counter-weight with limited range of yaw about a pin forming a fulcrum at its center of gravity affixed to said rotating base such that current flows from said first stationary slip ring, contacting said rotating brush and brush holder through said rotating field winding to said sub-assembly's second brush holder, brush, commutator and armature; whereby a second sub-assembly of opposite polarity being comprised of a conducting brush keeper and two electrically shunted brush holders such that current flows from said armature and commutator to said sub-assembly's first brush, brush holder and keeper, to said second brush holder, brush and slip ring of opposite polarity forming a series electrical connection between the rotating field and armature windings.

[c4] (Currently Amended) The machine in claim [[1]] 2 wherein stationary armature windings and rotor coil having a shunt electrically connection at one end via one of said rotating brushes such that electric current from said power source flows through said armature windings and rotor coil in a parallel electrical connection and whereas said current continues to flow from said rotor coil through a third stationary slip ring affixed to the machine house continuing to an whereas said first rotating brush sub-assembly comprised of a non-conducting brush keeper three brushes, and three copper brush holders having the first and second copper brush holders shunted together and electrically insulated from the third such that current flows from said first stationary slip ring, contacting said first rotating brush and brush holder through said rotating field winding in a parallel electrical

connection with said stationary commutator and armature; whereby current flows through said rotating field winding to said third brush holder, brush and a third stationary slip ring electrically connected to an outside regulator as a means for separate excitation and regulation[.]; whereby said second sub-assembly of opposite polarity being comprised of a conducting brush keeper and two electrically shunted brush holders such that current flows from said armature and commutator to said sub-assembly's first brush, brush holder and keeper, to said second brush holder, brush and second slip ring of opposite polarity.

[c5] (Cancelled)      The machine in claim 1 wherein said rotating brushes electrically contact the outer diameter of the cylindrical stationary commutator and slip rings such that centrifugal forces acting on said brushes forces them in an outward direction away from the surface of the commutating assembly parallel to the plane of rotation, while said brush keepers apply a moment equal and opposite that applied from the centrifugal forces acting on said brushes as a means for keeping said brushes in contact with said commutator assembly.

[c6] (Cancelled)      The machine in claim 1 wherein said rotating brushes electrically contact the inner diameter of the cylindrical stationary commutator and slip rings such that centrifugal forces acting on said brushes forces them in an outward direction towards the inner surface of the commutating assembly parallel to the plane of rotation, while said brush keepers apply a moment equal and opposite that applied from the centrifugal forces acting on said brushes as a means for preventing said brushes from applying excessive pressure at the point of contact on said commutator assembly.

[c7] (Currently Amended) The machine in claims 1, 2, 3 & 4 wherein said rotating brush assembly's brushes electrically contact the outer flat or conical surface of the stationary commutator and slip rings arranged in a concentric pattern such that centrifugal forces acting on said brushes travel forces them in a an outward direction parallel to the plane of rotation and perpendicular to the point of contact between said stationary commutator and rotating brushes eliminating the need for counter weights.